



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,249	09/11/2003	James V. Candy	IL-10941	8702

7590 12/15/2006
Eddie E. Scott
Assistant Laboratory Counsel
Lawrence Livermore National Laboratory
P.O. Box 808, L-703
Livermore, CA 94551

EXAMINER

KISH, JAMES M

ART UNIT	PAPER NUMBER
----------	--------------

3737

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,249

Applicant(s)

CANDY ET AL.

Examiner

James Kish

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-94 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3,9-20,26-40,46-60 and 66-94 is/are rejected.
- 7) ☒ Claim(s) 4-8,21-25,41-45 and 61-65 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/11/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 11-20, 28-34, 38-40, 48-54, 58-60, 68-74, 78-84 and 90-93 are rejected under 35 U.S.C. 102(b) as being anticipated by Fink (US Patent No. 5,092,336). Fink discloses a method and device for focusing an ultrasound beam delivered by a transducer array on a reflective target in a medium. The distribution in time and the shapes of the echo signals for obtaining reversed signals are reversed and the reversed signals are applied to the respective transducers of the array (see Abstract). The method includes illuminating a zone with an initial unfocused beam. See column 2, lines 25-34. Each time reversal of the echo enhances the ratio between the energy reflected by the target of high reflectivity and the energy reflected or scattered by local irregularities (column 2, lines 45-48). The device comprises a transducer array, a processing channel comprising an A/D converter, memory means and a power transmitter (column 4, lines 1-9). It is possible for the device to carry out ultrasonic hyperthermia. Also, there may be a stone reflecting a beam received from an array of illumination transducers (column 2, lines 10-17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9-10, 26-27, 46-47 and 66-67 rejected under 35 U.S.C. 103(a) as being unpatentable over Fink'336 in view of Fink'999 (US Patent No. 5,428,999). Fink'336 discloses all of the claimed subject matter except for using a model to determine the location of the target. Fink'999 teaches using a theoretical model of the coordinates, it is possible to synthesize a wavefront by emitting pulses having a relative disposition corresponding to a spherical approximation (column 9, line 68 through column 10, line 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the use of the model as taught by Fink'999 in the method of Fink'336 because they are identical fields of endeavor.

3. Claims 37, 57, 77, 86-89 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fink'336 in view of Morrison et al. (US Patent No. 6,099,864). Fink'336 discloses all of the claimed subject matter except for using microbubbles for drug delivery. Morrison teaches in situ activation of microcapsules. Morrison discusses using ultrasound to release drugs at a target location via microcapsules (column 4, line 48 through column 5, line 8). In certain embodiments, the device and method can be

Art Unit: 3737

used for chemotherapy purposes (column 8, lines 39-43). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the microcapsule drug release system of Morrison in the system of Fink'336 to increase the ability to destroy cancerous growths and treat patients more effectively.

4. Claims 35-36, 55-56, 75-76 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fink'336 in view of Jolesz et al. (US Patent No. 5,725,515). Fink'336 discloses all of the claimed subject matter except for increasing porosity of tissue via ultrasound. Jolesz teaches a method and apparatus for ultrasonic delivery of compounds through the blood-brain barrier by increasing the porosity of the barrier, thereby allowing uptake of a compound into an area for treatment. See column 2, lines 14-59. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use ultrasound to increase porosity of tissue in order to induce uptake of a compound for treatment purposes.

Allowable Subject Matter

5. Claims 4-8, 21-25, 41-45 and 61-65 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Other related art:

Fink et al. 6,978,028

Hassler et al. 4,526,168

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Kish whose telephone number is 571-272-5554. The examiner can normally be reached on 8:30 - 5:00 ~ Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK


BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700